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Korea signed the Cartagena Protocol on Biosafety (CPB) but has not ratified it to date. After repeated delays, Korea is now likely to ratify the CPB in October 2007 and implement it in January 2008. In order to avoid a disruption of trade in biotech products when the CPB is implemented, it is essential that environmental risk assessments (ERAs) be completed before the CPB and implementing regulations go into effect. To date, 21 of the 33-biotech events have completed ERAs. Treatment of stacked events could be problematic, as Korea only recently released the draft provisions on how to treat ERAs for stacked events. Effective October 11, 2007, Korea will require that retail packaged animal feed containing biotech ingredients carry GMO label.

Includes PSD Changes: No
Includes Trade Matrix: No
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Executive Summary

Korea is a signatory to the Cartagena Protocol on Biosafety (CPB) but has not ratified it. Korean plans to ratify the CPB in October 2007 and implement the Living Modified Organism Act (hereinafter referred to as LMO Act) in January 2008. The LMO Act is the Korean legislation that implements the CPB.

Korea has a fairly extensive regulatory system for biotechnology products. The Ministry of Agriculture & Forestry (MAF) regulates labeling of unprocessed biotech products and conducts environmental risk assessments (ERAs) of biotech crops. The Korea Food & Drug Administration (KFDA) regulates food safety approval of biotech crops and labeling of processed food products containing biotech components. The Ministry of Commerce, Industry, and Energy (MOCIE) is the national competent authority for implementation of the CPB. MOCIE coordinates the efforts of seven ministries that have been drafting regulations and guidelines to implement the CPB. In June 2007, MOCIE released the draft version of consolidated guidelines for trade and production of LMOs and is gathering comments on the draft guidelines at the moment. The consolidated guidelines provide details about import inspection, required documents for import clearance, and required approval for trade of LMOs into Korea. Korea's regulations and guidelines to implement the CPB will have a significant impact on U.S. exports to Korea.

No crops produced using biotechnology have been commercialized in Korea. Thus, to date, the process for biotech crop and food approval has only been applied to imported products. Korea has two separate systems for obtaining food safety approvals and for conducting ERAs for biotech food and crops. At present, food safety approvals for biotechnology crops are mandatory but ERAs are voluntary. However, ERAs will become mandatory when the LMO Act goes into effect. As of July 2007, 50 biotech "events" (i.e., unique genetic lines produced by genetic engineering) had obtained food safety approval. Twenty-one biotech events have completed ERAs. To date, no ERAs for intentional environmental release (i.e., planting) have been completed. Thus, the scope of all ERAs that have been completed so far has been limited to assessing the environmental risk of unintentional release.

Unprocessed biotech crops that have been approved by KFDA intended for human consumption are required to carry GM labels. Three percent adventitious presence of biotech components is allowed. A "GM Food" label is not required as long as identity preserved (IP) documentation or a government issued certificate is submitted to verify that the product is non-biotech.

For processed products and consumer-ready products, biotech labeling is required for 27 food categories if either of the following two situations apply:

- Biotech soybeans or corn are one or more of the top five ingredients in the final product.
- Foreign protein or DNA inserted into the product using biotechnology is still present in the final product.

KFDA recently issued a proposed revision to biotech labeling requirements. KFDA proposed to expand mandatory biotech labeling to three more crops; cotton, canola, sugar beets. No significant trade impact is expected as the majority of products made using such three crops as raw materials are cooking oils or raw sugar, which are exempt from biotech labeling.

Local non-governmental organizations (NGOs) and the media tend to instill a negative perception of biotech agricultural products among Korea's consumers. Although Korean regulations allow for the sale of biotech foods it is impossible to find products with a "GM

Food" label in the marketplace. Korean food processors respond to consumer concerns by not using ingredients produced through biotechnology to avoid having to label them as a "GM Food." Retailers explain that they do not want to be singled out for criticism by NGOs or local media for selling biotech products. However, refined vegetable oils that do not contain recombinant DNA are exempt from the "GM Food" labeling requirement. Consequently, Korea imports substantial amounts of biotech crops and products that are further processed to make products such as soybean oil.

SECTION II. BIOTECHNOLOGY TRADE AND PRODUCTION

A. Commercial Production of Biotechnology Crops

Korea has yet to commercially produce any biotech crops. However, Korea is investing substantial resources in the development of such crops. In 2007, MAF will invest 85.1 billion won (approximately $91.5 million dollars) to promote biotechnology including activities to develop new biotech crops and organs from animals that can be transplanted into humans.

B. Biotechnology Crops Under Development

The development of biotechnology crops is being led by various government agencies. The National Institute of Agricultural Biotechnology (NIAB) under MAF's Rural Development Administration (RDA) is developing 45 separate biotech traits among 18 crops and five traits in two animals. Herbicide tolerant rice, pepper, perilla seed, and virus resistant potatoes are expected to become the first domestically developed biotech crops to become commercially produced in Korea. Korea's first biotech crops are currently undergoing environmental risk assessments through contained field trials and could be produced commercially in three to four years. No official statistics on the development of biotechnology crops by private entities are available. Rough industry estimates indicate that approximately 60 varieties are under development although they are all still at the laboratory stage. With regard to research, a total of 365 papers pertinent to biotech crops were issued in Korea between 1990 and 2006. Researches mainly focused on transformation technics, gene expression, disease resistance and environmental stress resistance biotech crops.

C. Imports of Biotechnology Crops/Products

Korea imports biotechnology crops and products. Foods for human consumption containing biotech events must undergo a complete safety assessment conducted by the KFDA. Biotechnology crops/products that contain unapproved events are not allowed to be imported or sold on the Korean market. To date, 50 events have completed KFDA's assessments. (See Section III-B for a list of approved events.) The most important biotech crops imported from the United States are soybeans and corn, which are used for further processing and animal feed in Korea. Biotech crops and products destined for human consumption must carry a biotechnology label. Non-GMO corn and soybeans must have IP documentation or official government certification of the non-biotech status of the shipment.

In MY 2005/2006 (October 2005 through September 2006) the United States supplied 5,374,385 metric tons (MT) of corn, accounting for 63 percent of Korea's total bulk corn imports. Of that, 4,813,352 MT was used for animal feed, and the rest was used for processing purposes. Bulk corn imports destined for animal feed are not inspected for biotech corn events. Nearly all corn imported for human consumption was IP-handled, non-biotech corn.

In MY 2005/2006, the United States supplied 513,611 MT of soybeans, accounting for 43 percent of Korea's total soybean imports. Soybeans imported from the United States consisted of 252,985 MT of soybeans used for crushing and 260,626 MT for food processing. Since vegetable oil is exempted from labeling, soybean imports from the United States for crushing purposes are generally bulk soybeans that contain biotech events. All soybeans imported for food processing such as soybeans for tofu, bean paste, bean sprouts, etc. are IP-handled, non-biotech products.

D. Food Aid

South Korea is not a food aid recipient and is not likely to become a food aid recipient in the future.

E. Production of Biotechnology Crops That Were Developed Outside of the United States

At present, Korea does not commercially produce biotechnology crops of any origin.

SECTION III. BIOTECHNOLOGY POLICY

A. Regulatory Framework for Agricultural Biotechnology

The Act on Transboundary Movement of Living Modified Organisms (LMO Act) and its Presidential Decree and Ministerial Ordinance (Korea's LMO legislation and primary regulations to implement the CPB) were drafted by MOCIE and finalized and announced on March 28, 2001, September 30, 2005, and March 10, 2006, respectively. The legislation and regulations will become effective 90 days after Korea's ratification of the CPB. Guidelines for ERAs were drafted by MAF and finalized on January 9, 2002. Currently, MAF operates a voluntary ERA program. However, ERAs will become mandatory when the CPB goes into effect in Korea. It is expected that Korea will ratify the CPB in October 2007 and implement it in January 2008.

On June 26, 2007, the MOCIE and six other relevant ministries held a public outreach session to explain each ministry's role in implementing the CPB and released a draft version of the consolidated implementing guidelines that will apply to the development, production, import, export, sale, transportation, and storage of LMOs after the CPB is ratified. The consolidated implementing guidelines include guidelines for export and import of LMOs intended for agricultural use, intended for environmental release, fishery and maritime affairs use, etc. It is expected that the draft guidelines will be notified to the WTO shortly.

Labeling

The Agricultural Product Quality Control Act is the legal basis for MAF's labeling requirements for unprocessed biotech crops. Until June 2007, MAF required mandatory biotech labeling for soybeans, corn, bean sprouts, and potatoes for human food use. With the revision to the biotechnology labeling guidelines for unprocessed crops, MAF extended biotech labeling to all biotech crops that have been approved by KFDA for human consumption effective from June 29, 2007. In 2007, MAF also revised its Feed Manual and required that retailed packaged animal feed containing biotechnology products be labeled like food products. This new labeling requirement for animal feed shall take effect from October 11, 2007.

Labeling guidelines for processed food products containing biotech soybeans and corn as ingredients were finalized on August 30, 2000 and enforced from July 13, 2001. On June 15, 2007, KFDA proposed that three more biotech crops be added to the current product list requiring mandatory GMO labeling. The three crops are cotton, canola, and sugarbeets. Please refer to Labeling Section for details.

Safety Assessments

The Food Sanitation Act is the legal basis for safety assessments of products of agricultural biotechnology for human consumption and labeling of processed food products containing biotech ingredients. MHW has delegated the authority to draft guidelines and conduct safety assessments of biotech crops for human consumption and to draft guidelines for the labeling of processed food products containing biotech ingredients to KFDA. KFDA issued safety assessment guidelines and biotech labeling guidelines that are based on Korea's Food Sanitation Act. The KFDA guidelines for safety assessments of biotech crops for human consumption were finalized on August 29, 1999. A voluntary safety assessment program, in effect since August 29, 1999, became a mandatory program for soybeans, corn, and potatoes on February 27, 2004 and for all other biotech crops on February 27, 2005.

Responsible Government Ministries and Their Role

Ministry of Commerce, Industry and Energy (MOCIE): National competent authority for the CPB, responsible for the LMO Act and issues related to the development, production, import, export, sales, transportation, and storage (hereafter referred to as trade) of LMOs for industrial use

Ministry of Foreign Affairs & Trade (MOFAT): National focal point for the CPB

Ministry of Agriculture & Forestry (MAF): Responsible for ERAs for biotechnology crops including LMOs for food, feed, and processing, labeling of unprocessed biotechnology crops, and issues related to the trade of agriculture, forestry, and livestock LMOs

National Institute of Agricultural Biotechnology (NIAB), Rural Development Administration (RDA), MAF: Responsible for ERAs for biotechnology crops and leading developer of biotechnology crops in Korea

Ministry of Health & Welfare (MHW): Responsible for monitoring and/or enforcing regulations pertinent to the Food Sanitation Act and issues related to trade of LMOs used for health and pharmaceutical purposes including human risk assessments of such LMOs

Korea Food & Drug Administration (KFDA) (overseen by MHW): Responsible for the issuance of food safety approvals of biotechnology crops and the enforcement of labeling requirements for processed food products containing biotech ingredients

Ministry of Environment (MOEN): Responsible for issues related to the trade of LMOs that are used for the purpose of environmental purification or release into the natural environment (this does not include agricultural LMOs for planting) including risk assessments for such LMOs

Ministry of Science & Technology (MOST): Responsible for issues related to the trade of LMOs that are used for testing and research including risk assessments for such LMOs

Ministry of Maritime Affairs & Fisheries (MOMAF): Responsible for issues related to the trade of fishery and maritime LMOs including risk assessments for such LMOs

Role and Membership of the Biosafety Committee and Its Political Implications

In accordance with Article 31 of the LMO Act, a Biosafety Committee was established under the Prime Minister to review the following factors relevant to the import and export of LMOs:

- Factors relevant to the implementation of the protocol
- Establishment and implementation of the safety management plan for LMOs
- Notification of a list of LMOs that pose no harm in accordance with the provisions of Article 15
- Re-examination in accordance with the provisions of Article 18 of appeals by an applicant who fails to get import approval, etc.
- Factors relevant to legislation and notification pertinent to the safety management, import, and export, etc. of LMOs
- Factors relevant to the prevention of damage caused by LMOs and measures taken to mitigate damage caused by LMOs
- Factors requested for review by the Chair of the Committee or the head of competent national authority.

The Committee (including the Chair) is composed of 15 or more members but cannot exceed 20 members. The Prime Minister is the Chair. Committee members will include ministers from nine ministries (the seven relevant ministries noted above plus the Ministry of Finance and Economy (MOFE) and the Ministry of Education (MOE)). Private sector specialists can also be members of the Committee. The Committee may have subcommittees and technical committees. The Presidential Decree designates the necessary factors relevant to the formation, function, and operation of the Committee, subcommittees, and technical committees. The Committee will be formed when the CPB goes into effect in Korea.

The most important role of the Committee is to reconcile different positions among the relevant ministries. As each relevant ministry holds authority and responsibility in its respective areas, it may not be easy to reach consensus on some issues. In such cases, the Prime Minister as the Chair of the Committee can be called upon to resolve matters lacking consensus.

B. Approval of Biotechnology Crops

To date, there has been no commercial production of biotechnology crops in Korea. Thus, up until now, the approval process has only been applied to imported products. Korea has two separate approval systems for biotechnology crops: approvals for human consumption (a food safety approval) and environmental risk assessments (ERAs). At present, food safety approvals for biotechnology crops are mandatory while ERAs are voluntary. However, ERAs will become mandatory when the LMO Act goes into effect. Implementation of the LMO Act is expected to occur in January 2008.

As of July 2007, food safety approvals have been given to 50 events (out of 57 submission) and 21 events (out of 33 submission) have completed ERAs. As for food safety approval, KFDA has three categories of approval; full approval and two types of conditional approval. Full approval is given to biotech crops that are commercially produced for human consumption. Conditional approval applies to discontinued crops such as potatoes and crops not commercially produced for human consumption such as Bt 10. Crops granted conditional approval require a full safety evaluation if they are intended for commercial production for human consumption. The scope of ERAs so far has been limited to approval of biotechnology crops for unintentional release into the environment. No ERAs have been completed for intentional release (i.e., planting). Thus, to date, no product has been approved for commercial production. (Please refer to Section IV, Appendix A for the status of approval of biotechnology crops in Korea.)

C. Field Testing

In June 2007, Korea released the proposed consolidated guidelines to deal with import, export, and production of LMOs (hereinafter referred to as consolidated guidelines). The consolidated guidelines include provision to cover agricultural biotechnology products to be subject to in-country field tests. It is written that RDA will require in-country field tests for LMOs used for planting seed. As for LMOs to be used for food, feed, and processing (hereinafter referred to as LMO FFP), RDA will review the information relevant to field tests conducted in the exporting country. However, if necessary, RDA may require in-country field tests for LMO FFP.

For biotechnology crops being developed by RDA, field trials must follow the "Guidelines for Research and Handling of Recombinant Organisms Related to Agricultural Research." Voluntary guidelines entitled "Guidelines for Research of Recombinant Organisms" issued by the Ministry of Health & Welfare exist for biotechnology crops under development by private entities including universities. In accordance with the LMO Act, the consolidated guidelines include guidelines for local biotech developers and laboratories to comply with when the CPB goes into effect in Korea.

D. Stacked Events

KFDA does not require additional approval for stacked events if they meet the following criteria:

- Traits that are being combined were already approved individually.
- There is no difference in the given traits, intake amount, edible part and processing method in the stacked event and the conventional non-biotech counterpart.
- There is no crossbreeding among subspecies.

Consolidated guidelines released in June 2007 include provision to treat stacked events with regard to ERAs. According to the proposed provision, following documents need to be submitted to RDA:

1. Information to verify whether there is interaction of traits in nucleic acid inserted in parental line
2. Available information pertinent to characteristics of stacked events
3. Evaluation of 1 and 2 above
4. Confirmation from the developer who received approval for the parental event used in stacked events and agreement for review of already submitted information for the parental event

RDA will review the submitted documents and if it is turned out that there is interaction between traits in inserted nucleic acid in the parental line or specific things are noticed, then MAF will require ERAs. Otherwise, no additional approval will be required. When proposed guidelines are finalized, FAS/Seoul will prepare a voluntary GAIN report explaining the final policy on stacked events.

E. Coexistence (Zero Tolerance for GMOs in Organic Products)

Although many Korean consumers have negative sentiments about biotech crops and products, Korean regulation provides for the production, import, use and consumption of biotech crops and products. Similarly, regulations exist in Korea that provide for organic agricultural production. At present, however, Korean regulations for organic processed

products are mainly focused on the components of the final product rather than on the production process. Accordingly, the Korean Food & Drug Administration maintains a zero-tolerance policy for the inadvertent presence of GM content in processed organic products.

F. Labeling

Both unprocessed biotech crops for human consumption and processed food products containing biotech ingredients must carry “GM Food” labels. Unprocessed biotech soybeans, soybean sprouts, corn, and potatoes intended for human consumption used to be required to carry “GM Food” labels. Effective June 29, 2007, any unprocessed biotech crops that have been approved by KFDA for human consumption are required to carry “GM Food” label.

KFDA regulations for processed products, including consumer-ready products, require biotech labeling for 27 categories of foods if biotech soybeans or corn are one or more of the top five ingredients in the finished product or if a foreign protein or foreign DNA is present in the finished product. On June 15, 2007, KFDA proposed that three more biotech crops be added to the current product list requiring mandatory GMO labeling. The three crops are cotton, canola, and sugarbeets. If these crops are among the top five ingredients, the processed food product would be subject to GMO labeling. The proposal also requires GMO labeling for edible sprouts from these three crops. Foods containing refined ingredients derived from these crops, such as cotton and canola oils, and raw sugar would be exempt from the labeling requirement since a foreign protein or foreign DNA is not present in the finished products.

MAF allows for a three percent adventitious presence of biotech components in unprocessed non-biotech products. MAF’s threshold is the default threshold for processed food products that are subject to biotech labeling requirements. KFDA also allows for a three percent adventitious presence of biotech components in raw soybeans and corn destined for human consumption. Intentional mixture of biotech ingredients triggers the labeling requirement even if the final level of biotech presence is within the three percent threshold.

In April 2007, MAF introduced GMO labeling requirements for animal feed. Retail packaged animal feed products are required is to carry "GMO" label on a retail package if GMO ingredients are used in making animal feed just like food products. This new requirement shall take effect from October 11, 2007 since MAF granted a six-month grace period for this new labeling requirement.

Contents of Label Texts

Shipments that consist of 100 percent unprocessed biotech crops for human consumption should carry labels stating “GM ‘commodity’” (e.g. “GM soybeans”). Shipments that contain some biotech-enhanced crops should carry labels stating that the product “contains GM ‘commodity’” (e.g. “contains GM soybeans”). Shipments that may contain biotech-enhanced crops should carry labels stating that the product “may contain GM ‘commodity’” (e.g. “may contain GM soybeans”).

Processed products containing biotech ingredients should be labeled as follows:

- Products that contain biotech corn or soybeans composing less than 100 percent of the product ingredients should be labeled as “GM food” or “food containing GM corn or soybeans.”
- Corn or soybean products that are 100 percent biotech products should be labeled “GM” or “GM corn or soybeans.”

- Products that may contain biotech corn or soybeans should be labeled "May contain GM corn or soybeans."

Use of Labels Such as "Biotech-Free", "Non-Biotech", "GMO-Free", or "Non-GMO"

Concerning unprocessed biotech crops for human consumption, MAF allows a voluntary "non-GMO" label if the product is composed of 100-percent non-biotech enhanced material. For products with "non-GMO" labels, the maximum GMO threshold allowance is zero. Unprocessed bulk crops in which there is an adventitious presence of biotech components are not permitted to carry a "non-GMO" label. Importers must keep the relevant documents that support a "non-GMO" claim for "non-GMO"-labeled products. Such documents can include a testing certificate stating that there is no presence of GMO components. With regard to processed food products, however, KFDA does not encourage "non-GMO" or "GMO-free" labeling to prevent the misuse of such labels.

At the retail level, it is very rare to find products that carry any sort of "GM Food" label as retailers tend to avoid placing biotech products on their shelves. Retailer behavior in this regard is the result of a widely held perception that Korean consumers hold negative views about biotech products. (See Attaché Reports KS1004 and KS1046 for more details on GM labels.)

G. Biosafety Protocol

Korea signed the Cartagena Protocol on Biosafety (CPB) but has not ratified it to date. After repeated delays, Korea is now likely to ratify the CPB in October 2007 and implement it in January 2008. Regulations to implement the CPB (i.e., the Presidential Decree and Ministerial Ordinance of the LMO Act) were finalized September 30, 2005 (the Presidential Decree) and March 10, 2006 (the Ministerial Ordinance). Following these regulations, the draft version of consolidated implementing guidelines was released in June 2007. Korea is gathering comments from local parties and plans to notify it to the WTO for international comments soon. In order to avoid a disruption of trade in biotech products when the CPB is implemented, it is essential that ERAs be completed before the CPB and implementing regulations go into effect. To date, 21 of the 33-biotech events have completed ERAs. Treatment of stacked events could be problematic, as Korea only recently released its draft provisions as part of their consolidated guidelines on how to treat ERAs for stacked events. Due to absence of the regulation, not a single stacked events have been completed ERAs to date. After implementation of the CPB, sales and imports of biotechnology crops will not be allowed unless their ERAs have been completed.

H. Biotechnology-Related Trade Barriers

KFDA revised its labeling guidelines in order to formalize its policy regarding the zero tolerance for biotech components in organic products. Exporters from any country where biotech crops are produced could face difficulty in exporting organic products such as soybean powder, and soybean pastes to Korea because of Korea's zero-tolerance policy.

A StarLink-free certificate and StarLink-free statement are still required to accompany shipments of corn intended for food use and corn-based processed food products from the United States.

The Korean government required shipments of U.S. rice to be tested multiple times to confirm the absence of LLRice since the discovery of trace amounts of LLRice 601 in the U.S. rice supply in August 2006. Korea's Ministry of Agriculture & Forestry (MAF) requires two separate tests prior to loading, while the Korean Food & Drug Administration (KFDA) requires

a third test upon arrival. Once rice is released into the market, the National Agricultural Product Quality Service under MAF conducts the fourth test to verify the absence of LLRice in the marketed rice.

I. Pending Legislation

As noted in paragraph G above, the consolidated guidelines to implement the LMO Act are pending.

J. Technology Fees

Korea does not commercially produce biotechnology crops, neither does it have legislation in place to collect technology fees.

K. Government Investment and Non-Ag. Related Biotech Research

Many Koreans continue to believe that biotechnology is an important frontier for economic development for Korea in the 21st century. Proponents have had some success in making the case that biotechnology could be an engine for growth and could solve public health and environmental problems. Accordingly, Korea aspires to become the seventh largest biotech country in the world by 2016. To achieve such goal, Korea plans to strengthen the biotechnology promotion system based upon Bio-Vision 2016. Korea will continue to expand investment on biotechnology research and development of infrastructure. Investment will focus on national strategic areas such as fusion technology (BT-NT, BT-IT), biomaterial, biomedicine and organs, gene therapy, etc.

In 2007, the Korean government will increase its investment in the biotechnology sector by 3 percent, as compared to last year, to 851.5 billion won (approximately $916 million dollars). Six hundred ninety billion won will be used for research and development while the remaining government assistance will be used for the development of infrastructure and human resource. Prior to implementation of the LMO Act, Korea will build the national management system for LMOs. Korea will also set up a system to evaluate the safety and efficacy of high technology biomedicine and high functional food products.

Despite the Korean government's support for biotechnology research, the Korean public still has a negative perception of crops and foods produced using biotechnology. Consequently, most government funding for biotechnology research is directed toward non-agricultural projects such as biomedicine, stem cell research, cloning, and gene therapy.

A widely publicized human stem cell cloning scandal rocked the Korean biotechnology industry in 2006. Nonetheless, Koreans in general still maintain a positive view towards non-agricultural biotechnology and still believe biotechnology will play an important role in the country's economic development. The Korean government will invest 34.2 billion won (approximately $36.8 million dollars) on stem cell research in 2007.

SECTION IV. MARKETING ISSUES

A. Market Acceptance

Contradictory views about biotechnology characterize the Korean marketplace. Koreans hold positive views about the use of biotechnology in human and animal research, bio-medicine, and in the treatment of disease. On the other hand, Koreans feel negatively about use of biotechnology to produce food. Polls indicate that Koreans are willing to pay extra for non-biotech products.

Non-governmental organizations and the media have reinforced negative consumer perceptions surrounding the use of biotechnology to produce food. Concerns about negative reactions from NGOs, media, and individual consumers severely limit retailers' willingness to stock products with a "GM Food" label. Nonetheless, Korea imports substantial amounts of food ingredients produced using biotechnology for further processing into vegetable oil, corn syrup, and other products that are exempt from "GM Food" labeling requirements.

B. Korean Market Survey on Biotechnology Products

Post Survey

The Agricultural Trade Office in Seoul conducted two market surveys on biotechnology products. The first survey was conducted in 2001 and targeted consumers. The survey resulted in responses from 1,500 regular shoppers. The second survey polled 100 professors in 2003.

Results of the two surveys revealed that both professors and consumers had concerns about biotech food products although the degree of concern was different. Fifty-two percent of the professors agreed that biotech foods were safe for consumers, whereas only 21 percent of consumers did. Only 14 percent of consumers stated that they would ever purchase food with biotech contents and 51 percent of consumers thought that biotech food would be bad for their health. Only 5 percent of professors thought that biotech foods would be bad for their health. In the 2003 survey of professors, 81 percent supported the use of biotechnology in food and agriculture mainly as a means to increase production. However, a large percentage of the professors felt that biotech foods should be segregated in the market and 57 percent were willing to pay more for non-biotech agricultural products.

Korea Biosafety Clearing House Survey

In November 2006, the Korea Biosafety Clearing House conducted a survey of 1,500 consumers nationwide to identify consumer perceptions on biotechnology and LMOs following a similar survey in 2005. The survey showed 1.6 percent, 7.9 percent, and 71.9 percent of the respondents knew about biotechnology "very well", "well", and "somewhat" respectively. Fifty-five point four percent of the respondents thought that biotechnology would positively influence on human life. Pharmaceutical industry is the area where the respondents believed the most desirable for application of biotechnology followed by agriculture and food industry. As for LMOs, 72.4 percent of the respondents thought that strict measures are needed for handling, storage, and distribution of LMOs. Sixty-three point eight percent of the respondents thought that more stringent control over importation of LMOs is necessary. The survey showed that only 29.4 percent of the respondents would purchase LMO foods or LMO products although 51.6 percent of the respondents thought that LMOs would give more benefits than losses to human. The survey revealed that there is still strong negative perception on social acceptance of LMOs in Korea.

In November 2005, the Korea Biosafety Clearing House conducted a survey of 700 consumers residing in six major cities in Korea to identify consumer perceptions on biotechnology and LMOs. The survey showed that only six percent of the respondents had not heard of biotechnology. Forty-seven point seven percent and 1.9 percent of the respondents knew about biotechnology and LMOs "somewhat" or "well." With regard to preferences for the use of biotechnology, 40.4 percent of respondents preferred application of biotechnology in the pharmaceutical sector and 32.9 percent preferred application in the agriculture and food sectors. Seventy point four percent and 64.9 percent of respondents thought that LMOS would be harmful to human health and the environment, respectively. Sixty-eight percent of the respondents thought LMOs were "slightly" or "very" beneficial to humans while 45.1 percent of the respondents said that they would purchase biotech products. Fifty-five point three percent of the respondents said that they had an overall positive outlook on LMOs. The survey revealed that responses by different demographic groups did not vary significantly. Ninety-five percent of respondents said that labeling of biotech products should be mandatory. Overall, compared to the survey conducted in the previous year (please refer to the November 2004 survey below), except for perceptions regarding the human safety aspect, overall perceptions regarding LMOs have improved.

In October 2004, the Korea Biosafety Clearing House conducted a survey of 240 companies nationwide (not limited to biotech-related companies) to determine industry's perception of biotechnology and LMOs. The survey showed that most companies thought that the commercial application of biotechnology was desirable and that biotechnology could improve human life. Seventy-two percent of the companies thought that the biotech product market would expand rapidly. Seventy-five percent of all companies thought that the development of biotech products would be beneficial to their company. Forty-four percent of the companies indicated that they might develop or deal with biotech products in the future. Seventy-six percent of all companies thought that society would recognize the need for biotech products over time.

In November 2004, the Korea Biosafety Clearing House conducted a survey of 1,518 people nationwide to identify consumer perceptions regarding biotechnology and LMOs. The survey showed that 84 percent of respondents were aware of biotechnology. Sixty-five percent and 67 percent of respondents expressed concern that LMOs might be harmful to human health and environment, respectively. Six percent of the respondents thought that LMOs were greatly beneficial to humans whereas 49 percent thought they were not beneficial. Sixty-seven percent of the respondents said that they would not purchase biotech products whereas only 2 percent were willing to purchase them. Consumer acceptance of LMOs was very low; only 3.5 percent of the respondents had a positive outlook on LMOs in terms of what they believed would be consumer acceptance. The survey also revealed that housewives showed the least willingness to purchase biotech products.

SECTION V. CAPACITY BUILDING AND OUTREACH

A. U.S. Government or USDA Funded Outreach Activities

A number of activities have been organized and funded to provide biotechnology outreach in Korea:

1. Biotech press mission to the United States consisting of six reporters in 2000 sponsored by the USDA
2. Cochran Fellowship Program for three Korean biotechnology regulators in 2002
3. Inclusion of biotech briefings for participants in the State Department's International Visitors Program since 1999
4. Video conference sponsored by the USDA for professors and media in 2002
5. Speakers from the USDA, the State Department, and other agencies/organizations for various local symposiums organized by Korean government agencies including KFDA, RDA, the Korea Research Institute for Bioscience and Biotechnology, etc.
6. U.S. Grains Council's annual biotech program for media, NGOs, scientists, etc.
7. Dr. Benson's speech and press outreach in June 2006
8. Presentation by an expert from North American Export Grain Association to Korean industry pertinent to the Cartagena Protocol on Biodiversity in December 2007

SECTION VI. REFERENCE MATERIAL

APPENDIX A. TABLE OF APPROVED BIOTECHNOLOGY PRODUCTS AS OF JULY 2007

* FA: Food approval
* ERA: Environmental Risk Assessments (not for planting)

No	Crop	Event	Trait Category	Applicant	Approval
1	Soybean	GTS40-3-2	Herbicide Tolerance (HT)	Monsanto	FA* and ERA*
2	Corn	Mon810	Insect Resistance (IR)	Monsanto	FA and ERA
3	Corn	TC1507	HT, IR	Dupont	FA and ERA
4	Corn	GA21	HT	Monsanto	FA and ERA
5	Corn	NK603	HT	Monsanto	FA and ERA
6	Corn	Bt 11	HT, IR	Syngenta	FA and ERA
7	Corn	T25	HT	Aventis / Bayer	FA and ERA
8	Corn	MON863	IR	Monsanto	FA and ERA
9	Corn	Bt176	IR	Syngenta	FA and ERA
10	Corn	DLL25 [1)]	HT	Monsanto	FA
11	Corn	DBT418 [1)]	HT, IR	Monsanto	FA
12	Corn	MON863 X NK603	Ht, IR	Monsanto	FA
13	Corn	MON863 X MON810	IR	Monsanto	FA
14	Corn	MON810 X GA21	HT, IR	Monsanto	FA
15	Corn	MON810 X NK603	HT, IR	Monsanto	FA
16	Corn	MON810 X MON863 X NK603	HT, IR	Monsanto	FA
17	Corn	1507 X NK603	HT, IR	Dupont	FA
18	Corn	Das-59122-7	HT, IR	Dupont	FA and ERA
19	Corn	Mon88017	HT, IR	Monsanto	FA and ERA
20	Corn	Das-59122-7 X 1507 X NK603	HT, IR	Dupont	FA
21	Corn	1507 X Das-59122-7	HT, IR	Dupont	FA
22	Corn	Das-59122-7 X NK603	HT, IR	Dupont	FA
23	Corn	Bt11 X GA21	HT, IR	Syngenta	FA
24	Corn	MON88017 X MON810	HT, IR	Monsanto	FA
25	Corn	Bt10 [2)]	HT, IR	Syngenta	FA
26	Corn	MIR604	IR	Syngenta	FA
27	Corn	LY038	Lysine enriched	Monsanto	ERA
28	Cotton	531	IR	Monsanto	FA and ERA

29	Cotton	757	IR	Monsanto	FA and ERA
30	Cotton	1445	HT	Monsanto	FA and ERA
31	Cotton	15985	IR	Monsanto	FA and ERA
32	Cotton	15985 X 1445	HT, IR	Monsanto	FA
33	Cotton	531 X 1445	HT, IR	Monsanto	FA
34	Cotton	281/3006	HT, IR	Dow Agro Science	FA
35	Cotton	Mon88913	HT	Monsanto	FA and ERA
36	Cotton	LLCotton 25	HT	Bayer	FA and ERA
37	Cotton	Bollgard II 15985 X Roundup Ready Flex MON88913	HT, IR	Monsanto	FA
38	Cotton	BG2XLL (Bollgard II 15985 X LLCotton 25)	HT, IR	Bayer	FA
39	Cotton	281/3005 X 88913	HT, IR	Dow Agro Science	FA
40	Cotton	281/3005 X 1445	HT, IR	Dow Agro Science	FA
41	Canola	GT73	HT	Monsanto	FA and ERA
42	Canola	Ms8/Rf3	HT	Bayer	FA and ERA
43	Canola	T45 [1)]	HT	Bayer	FA and ERA
44	Canola	MS1/RF1 [1)]	HT	Bayer	FA
45	Canola	MS1/RF2 [1)]	HT	Bayer	FA
46	Canola	Topas1912 [1)]	HT	Bayer	FA
47	Potato	SPBT02-05 [1)]	IR	Monsanto	FA
48	Potato	RBBT06 [1)]	IR	Monsanto	FA
49	Potato	Newleaf Y [1)]	IR, Virus Resistance (VR)	Monsanto	FA
50	Potato	Newleaf Plus [1)]	IR, VR	Monsanto	FA
51	Sugar beet	H7-1	HT	Monsanto	FA

[1)] Conditional approval for discontinued items
[2)] Conditional approval for items that are not intended for commercialization